

<p align="center">APPENDIX 6 - FTIR</p>	<p align="center">Page 1 of 2</p>
<p align="center">Division of Forensic Science</p> <p align="center">TRACE EVIDENCE PROCEDURES MANUAL</p>	<p align="center">Amendment Designator:</p>
	<p align="center">Effective Date: 31-March-2003</p>
<p align="center">6 FOURIER TRANSFORM – INFRARED SPECTROPHOTOMETER (FTIR)</p> <p>A. The actual procedures used to perform the required daily and weekly QC may vary between regional laboratories as long as the instrument parameters are the same as listed below.</p> <p>B. Bench QC</p> <p>a. Daily</p> <p>i. The throughput of the bench will be documented daily. Both the maximum and the minimum values of the interferogram, the location of the center burst and the gain setting will be recorded in the log book with the date and the initials of who performed the QC.</p> <p>a. Gain = 1; Center burst = 1024 ± 16</p> <p>i. If not, align bench and perform maintenance if needed</p> <p>b. Absolute value of maximum and minimum > 8</p> <p>i. If not, align bench and perform maintenance if needed</p> <p>c. A spectrum of the polystyrene test film will be taken daily with the following instrument parameters:</p> <ul style="list-style-type: none"> • Scans = 32 • Resolution = 4 cm^{-1} • Gain = 1.0 • Mirror velocity = 0.6329 <p>ii. The value of the 1601 cm^{-1} peak will be recorded in the log book, along with the date and initials of the person performing the test. If the value has changed $\pm 0.1 \text{ cm}^{-1}$ from the last value, then perform maintenance. A copy of the polystyrene spectrum will be generated and stored for one year.</p> <p>b. Weekly</p> <p>i. The bench will be aligned weekly using the “Align Bench” function and the throughput values will be documented following the same criteria as listed above.</p> <p>ii. After alignment, the noise level of the bench will be checked with the following instrument parameters:</p> <ul style="list-style-type: none"> • Scans = 64 • Resolution = 4 cm^{-1} • Gain = 1.0 • Mirror velocity = 0.6329 <p>iii. Noise will be measured at the $2200\text{-}2100 \text{ cm}^{-1}$ region of the spectrum. The Peak-to-Peak value should be below 0.025, if not, perform maintenance. The noise value will be recorded in the log book, along with the date and initials of the person performing the test.</p> <p>C. Microscope Accessory QC</p> <p>a. Weekly</p> <p>i. The alignment of the optical path of the microscope shall be checked (aligned) weekly, or as needed, using the $100 \mu\text{m}$ pinhole of the alignment slide and with the upper and lower apertures (1.5 mm) in place. The detector</p>	

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<p>will be cooled for a minimum of about fifteen minutes prior to checking the throughput. Insulated gloves and safety glasses shall be worn when filling any dewar. The interferogram will be checked in Transmission mode with the upper and lower apertures (1.5 mm) in place. Using the 100 μm pinhole of the alignment slide is optional when checking throughput. If the sum of the maximum and minimum values of the interferogram (absolute value) is above 8 or above 20% of the highest value recorded for that specific instrument (whichever is highest), record both maximum and minimum values and the gain setting in the log book, date and initial.</p> <p>ii. After alignment, the noise level of the scope will be checked with the following instrument parameters:</p> <ul style="list-style-type: none"> • Scans = 128 • Resolution = 4 cm^{-1} • Gain = 2.0 • Mirror velocity = 1.8988 <p>iii. Noise will be measured at the 2200-2100 cm^{-1} region of the spectrum. The Peak-to-Peak value should be below 0.10, if not, perform maintenance. The noise value will be recorded in the log book, along with the date and initials of the person performing the test.</p> <p>iv. Maintenance on the computer and peripherals will be performed as needed. Any maintenance will be recorded in the log book with the date and initial of the person performing the maintenance.</p> <p align="right">◆End</p>	